



U.S. Department of Energy  
Energy Efficiency and Renewable Energy

# Solid-State Lighting Program Overview

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**U.S. Department of Energy**

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ENERGY STAR® SSL WORKSHOP  
Washington, DC



# The Legislative Authority

## Domenici-Barton Energy Policy Act of 2005

### Section 912

*“The Secretary shall carry out a Next Generation Lighting Initiative in accordance with this section to support research, development, demonstration, and commercial application activities related to advanced solid-state lighting technologies based on white light emitting diodes.”*



# SSL Partnership Next Generation Lighting Industry Alliance MOA

*“The Parties will conduct activities in support of research, demonstration and deployment of solid-state lighting (SSL) technologies for general lighting applications.”*

*“...create criteria for voluntary market conditioning programs, such as ENERGY STAR®”*

## **Members:**

Acuity Brands Lighting • Air Products & Chemicals • CAO Group • Corning • Cree • Dow Corning  
Eastman Kodak Company • GE-Lumination • Light Prescriptions Innovators LLC • LSI Industries  
OSRAM Sylvania • Philips Solid-State Lighting Solutions • QuNano • Ruud Lighting • 3M



# Illuminating Engineering Society of North America MOU

*“Developing and maintaining guides and procedures to assist the lighting measurement and application community in the photometric measurement of solid state lighting devices and other technologies to support DOE programs, including development of ENERGY STAR® criteria for SSL...”*

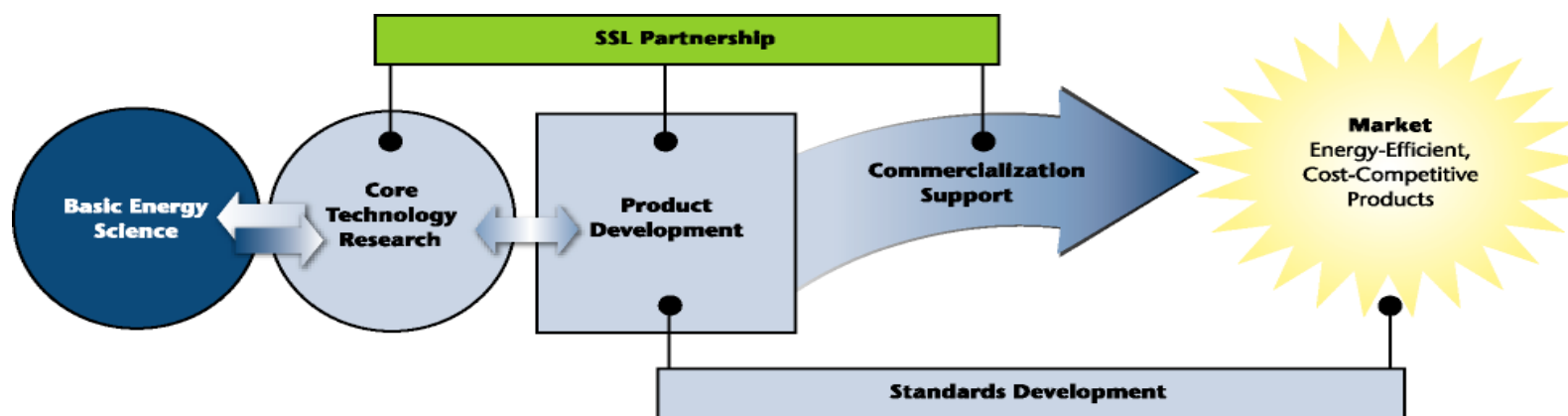
## **IESNA:**

IESNA is the recognized technical authority on illumination and communicates information on all aspects of good lighting practice to its members, the lighting community, and consumers.

[www.iesna.org](http://www.iesna.org)



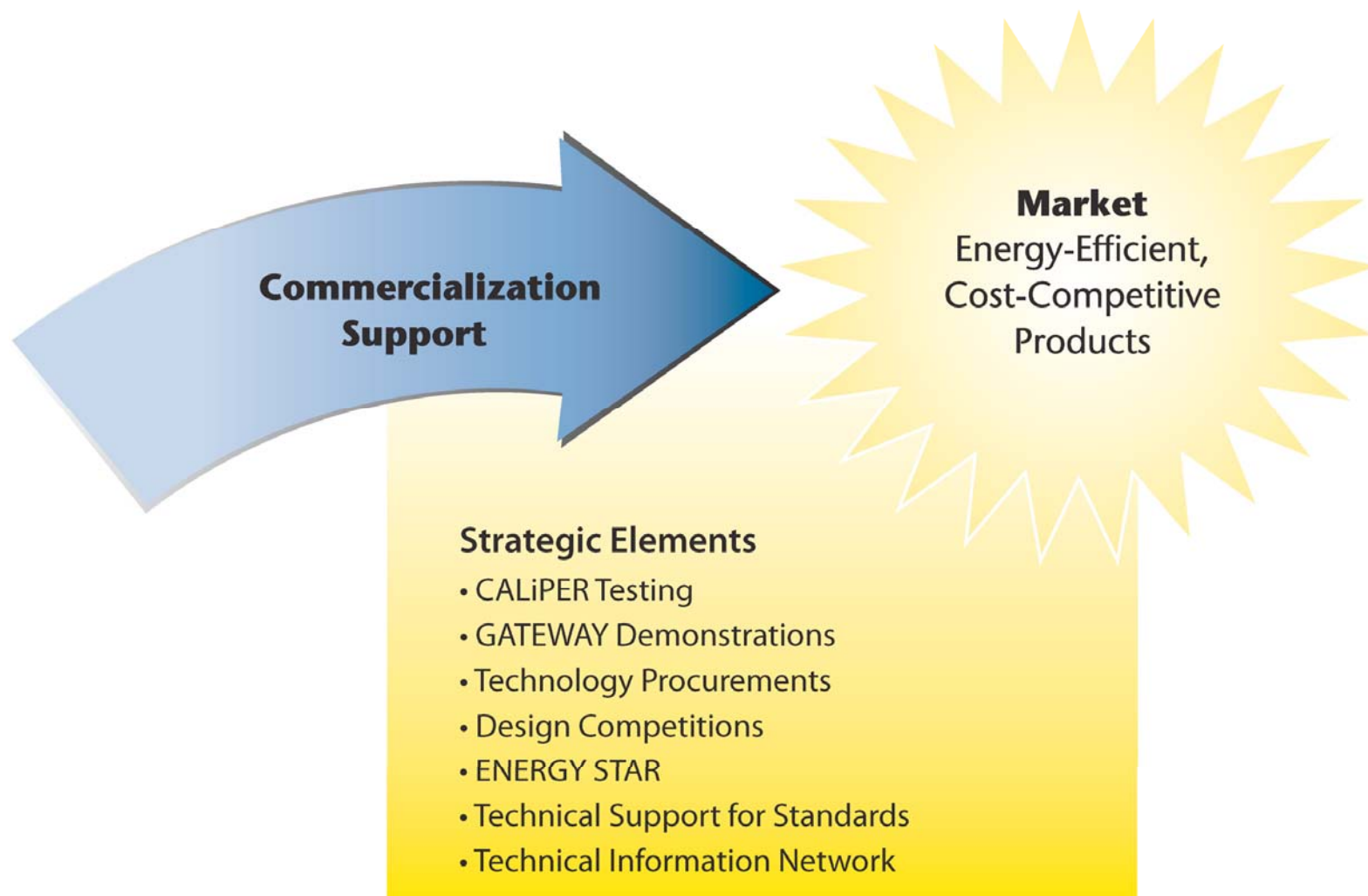
# DOE Solid-State Lighting Program Strategy



Guiding technology advances from  
laboratory to marketplace



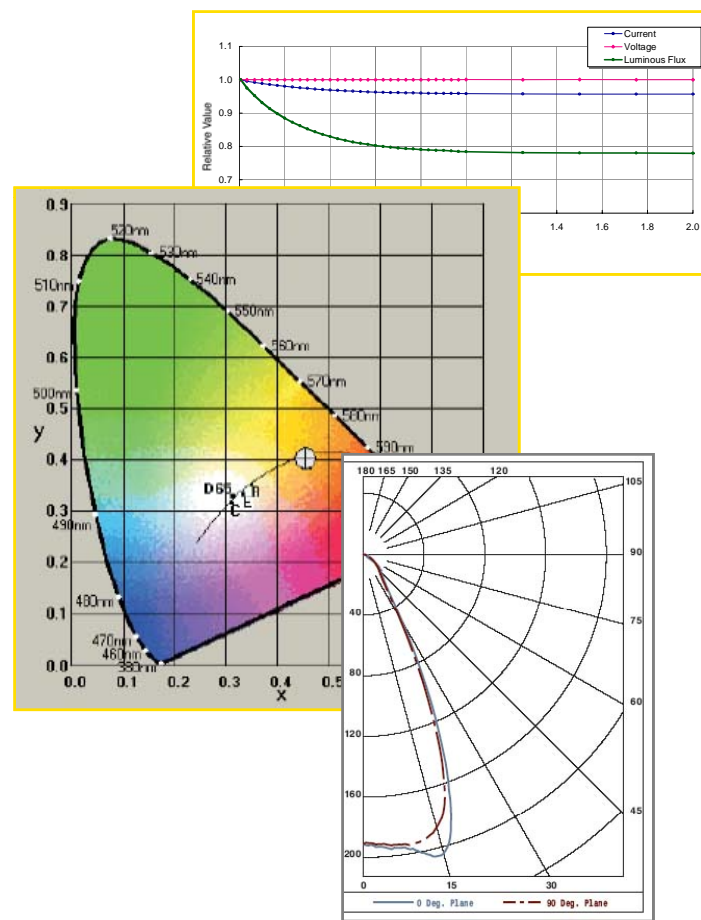
# SSL Pathways to Market





# CALiPER Guides Planning & Fosters Developing Market

- CALiPER: Supports testing of wide array of SSL, benchmark, and demo products
- Rounds 1 – 4 completed
  - Included undercabinet, step/wall, outdoor, and task/desk lighting, downlights, and replacement lamps
- Summary analysis, detailed test reports available





# GATEWAY Demonstrations Showcase SSL Products in Real Applications

- City of Oakland: street lighting
- Federal Aviation Administration: walkway lighting
- Additional demonstrations under way
- Open solicitation timeframe
- User groups being formed
  - Municipalities
  - Academia
  - Retailers



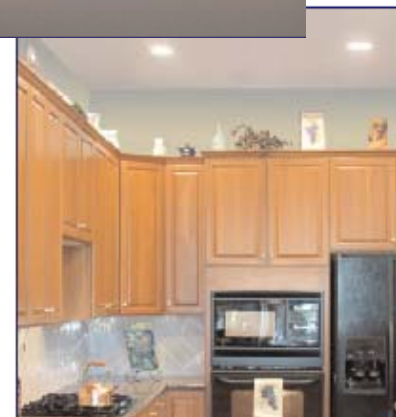
*Oakland demonstration, with Beta LED streetlights (foreground) and HPS streetlights (background). Photo: Beta LED.*





# Lighting for Tomorrow: SSL Competition

- Sponsored by DOE, ALA, CEE
- 2007 winners:
  - LED Lighting Fixtures, Inc. – LR6 downlight
  - Finelite – PLS desk lamp and undercabinet fixtures
  - Progress Lighting – Strata outdoor wall lantern
- 2008 competition:
  - Fixtures that meet ENERGY STAR
  - Other decorative fixtures
  - Future LED Showcase





## DOE ENERGY STAR for SSL

- Announced September 2007
- Labeled products available October 2008
- Covers task, undercabinet, outdoor porch, step and pathway lighting, and recessed downlights
- Developed in collaboration with key standards organizations and input from stakeholders
- ENERGY STAR will accelerate market penetration of better performing, higher efficiency products





# Standards and Test Procedures Support



- DOE workshops in 2006 and 2007
- Released:
  - Chromaticity (ANSI C78.377A)
  - Photometric Measurement (LM-79)
- Very near completion:
  - Lumen Depreciation (LM-80)
- In process:
  - Safety (UL 8750)
  - SSL-LED power supply (C82.SSL1)
  - Definitions/nomenclature (IESNA RP-16)



## SSL Technical Information Network



Northeast Energy Efficiency Partnerships, Inc.



- Goal: increase awareness of SSL technology, performance, and appropriate applications
- Created with support from competitively selected partners
- Members:
  - Regional energy efficiency organizations and program sponsors
  - Utilities
  - State and local energy offices
  - Lighting trade groups
  - Other stakeholders



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# Bright Tomorrow Lighting Prizes

Competition Launch  
LIGHTFAIR International  
Las Vegas, NV  
May 28, 2008

- Created by Energy Independence and Security Act (EISact 2007) Sec. 655
- 60 W Incandescent Replacement - \$10M - **90 lm/W**
- PAR 38 Halogen Replacement - \$5M – **123 lm/W**
- 21<sup>st</sup> Century Lamp - \$5M – **150 lm/W**



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# Voices for SSL Efficiency 2008 Opportunities to Partner and Participate Annual Market Introduction Workshop

*Sponsored by the U.S. Department of Energy, Northwest  
Energy Efficiency Alliance, Energy Trust of Oregon,  
Puget Sound Energy*

July 9-11, 2008  
Portland, Oregon

More details to come at [www.netl.doe.gov/ssl](http://www.netl.doe.gov/ssl)





## Stay Tuned...

- *More new programs coming in 2008...*